



PCT

REC'D 15 DEC 2004

RAPPORT D'EXAMEN PRELIMINAIRE INTERNATIONAL

WIPO PCT

(article 36 et règle 70 du PCT)

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| Référence du dossier du déposant ou du mandataire | POUR SUITE A DONNER voir la notification de transmission du rapport d'examen préliminaire international (formulaire PCT/PEA/416) | |
| Demande internationale No. PCT/FR 03/03361 | Date du dépôt international (jour/mois/année) 13.11.2003 | Date de priorité (jour/mois/année) 19.11.2002 |
| Classification internationale des brevets (CIB) ou à la fois classification nationale et CIB C22C38/54 | | |
| Déposant USINOR et al. | | |
| <p>1. Le présent rapport d'examen préliminaire international, établi par l'administration chargée de l'examen préliminaire international, est transmis au déposant conformément à l'article 36.</p> <p>2. Ce RAPPORT comprend 5 feuilles, y compris la présente feuille de couverture.</p> <p><input type="checkbox"/> Il est accompagné d'ANNEXES, c'est-à-dire de feuilles de la description, des revendications ou des dessins qui ont été modifiées et qui servent de base au présent rapport ou de feuilles contenant des rectifications faites auprès de l'administration chargée de l'examen préliminaire international (voir la règle 70.16 et l'instruction 607 des Instructions administratives du PCT).</p> <p>Ces annexes comprennent feuilles.</p> | | |
| <p>3. Le présent rapport contient des indications et les pages correspondantes relatives aux points suivants :</p> <p>I <input checked="" type="checkbox"/> Base de l'opinion</p> <p>II <input type="checkbox"/> Priorité</p> <p>III <input type="checkbox"/> Absence de formulation d'opinion quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle</p> <p>IV <input type="checkbox"/> Absence d'unité de l'invention</p> <p>V <input checked="" type="checkbox"/> Déclaration motivée selon la règle 66.2(a)(ii) quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle; citations et explications à l'appui de cette déclaration</p> <p>VI <input type="checkbox"/> Certains documents cités</p> <p>VII <input type="checkbox"/> Irrégularités dans la demande internationale</p> <p>VIII <input type="checkbox"/> Observations relatives à la demande internationale</p> | | |
| Date de présentation de la demande d'examen préliminaire internationale 10.05.2004 | Date d'achèvement du présent rapport 13.12.2004 | |
| Nom et adresse postale de l'administration chargée de l'examen préliminaire international  Office européen des brevets D-80298 Munich Tél. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Fonctionnaire autorisé Boureau, J-L N° de téléphone +49 89 2399-8454  | |

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**RAPPORT D'EXAMEN
PRÉLIMINAIRE INTERNATIONAL**

Demande internationale n°

PCT/FR 03/03361

6. Observations complémentaires, le cas échéant :

V. Déclaration motivée selon l'article 35(2) quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle; citations et explications à l'appui de cette déclaration

| | | | |
|--|------|----------------|------|
| 1. Déclaration | | | |
| Nouveauté | Oui: | Revendications | 1-11 |
| | Non: | Revendications | |
| Activité inventive | Oui: | Revendications | 1-11 |
| | Non: | Revendications | |
| Possibilité d'application industrielle | Oui: | Revendications | 1-11 |
| | Non: | Revendications | |

2. Citations et explications

voir feuille séparée

Concernant le point V**Déclaration motivée quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle; citations et explications à l'appui de cette déclaration**

Il est fait référence aux documents suivants :

D1: PATENT ABSTRACTS OF JAPAN vol. 018, no. 226 (C-1194), 25 avril 1994-& JP 06 017188 A

D2: PATENT ABSTRACTS OF JAPAN vol. 015, no. 154 (C-0825), 18 avril 1991 -& JP 03 031443 A

D3: WO 96/22396 A

L'invention concerne une pièce en acier de construction soudable ayant une microstructure bainitique et/ou martensitique qui comprend de l'austénite résiduelle.

Le document D1 concerne de telles pièces dont la structure présente plus de 5% d'ilots martensitiques contenant de l'austénite résiduelle. La composition de base de cet acier connu, dont la teneur en azote n'est pas précisée, est similaire à celle donnée à la revendication 1 de la demande (voir les aciers des exemples R et K, tableau 1 de D1).

Les caractéristiques suivantes de la revendication 1 ne sont divulguées, ni explicitement, ni implicitement par D1, notamment par les exemples (Tableaux 1 et 2):

(i) des teneurs en azote, bore, aluminium et titane réglées de manière à ce que la teneur en bore remplisse la condition (1) $B \geq 1/3 \times K + 0,5$, où K dépend des teneurs en azote, aluminium, et titane.

(ii) une proportion de 3 à 20% d'austénite résiduelle

Les données concrètes de D1 (exemples) rendent peu probable l'obtention de ces caractéristiques.

La lecture du document D1 ne conduirait donc pas à travailler dans les limites de

la revendication 1.

La différence (i) permet de réaliser un compromis entre la soudabilité et la trempabilité, problème non abordé dans D1. Elle n'est pas non plus divulguée par les documents D2 et D3.

La revendication 1 remplit donc la condition de nouveauté (Article 33(2) PCT).

Le document D2 divulgue des pièces en acier forgées à chaud de composition proche de celle de la demande (exemples B, C, E, L, N du tableau 1 de D2) mais sans limitation particulière pour la teneur en azote. D2 ne concerne ni le soudage, ni la trempabilité.

L'enseignement du document D3, notamment pages 8, 10 et 11, qui concerne des aciers bainitiques au bore à haute résistance mécanique pour rails, ne va pas au-delà de D1.

L'objet de la revendication 1 et des revendications 2 à 5 qui en dépendent paraît donc impliquer une activité inventive (Article 33(3) PCT).

Le procédé selon la revendication 6 pour la fabrication de la pièce selon la revendication 1 remplit également les conditions de nouveauté et activité inventive. Il en est de même pour les revendications 7 à 11 qui dépendent de la revendication 6.

Translation

PATENT COOPERATION TREATY

Rec'd PCT/PTO 18 MAY 2005
PCT/FR2003/003361



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

| | | |
|---|---|---|
| Applicant's or agent's file reference CLI 01/003A | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/FR2003/003361 | International filing date (day/month/year) 13 novembre 2003 (13.11.2003) | Priority date (day/month/year) 19 novembre 2002 (19.11.2002) |
| International Patent Classification (IPC) or national classification and IPC C22C 38/54, C21D 8/02, C22C 38/44 | | |
| Applicant INDUSTEEL CREUSOT | | |

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|--|
| 1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36. |
| 2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet. <input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of _____ sheets. |
| 3. This report contains indications relating to the following items: I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application |

| | |
|--|--|
| Date of submission of the demand 10 mai 2004 (10.05.2004) | Date of completion of this report 13 December 2004 (13.12.2004) |
| Name and mailing address of the IPEA/EP | Authorized officer |
| Facsimile No. | Telephone No. |

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR2003/003361

I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☒ the description:
pages _____ 1-10 _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the claims:
pages _____ 1-11 _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the drawings:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/FR 03/03361

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------------------------|--------|------|-----|
| Novelty (N) | Claims | 1-11 | YES |
| | Claims | | NO |
| Inventive step (IS) | Claims | 1-11 | YES |
| | Claims | | NO |
| Industrial applicability (IA) | Claims | 1-11 | YES |
| | Claims | | NO |

2. Citations and explanations

This report makes reference to the following documents:

- D1: PATENT ABSTRACTS OF JAPAN, Vol. 018, No. 226 (C-1194), 25 April 1994 & JP 06 017188 A
D2: PATENT ABSTRACTS OF JAPAN, Vol. 015, No. 154 (C-0825), 18 April 1991 & JP 03 031443 A
D3: WO 96/22396 A

The invention relates to a steel workpiece having a weldable structure and a bainitic and/or martensitic microstructure comprising residual austenite.

Document D1 relates to workpieces of this type, having a structure that presents more than 5% martensitic islets that contain residual austenite. The basic composition of that known steel, whose nitrogen content is not specified, is similar to that in claim 1 of the application (see the steels in examples R and K, table 1 of D1).

D1 does not disclose the following features of claim 1, either explicitly or implicitly, in particular in the examples (tables 1 and 2):

- (i) nitrogen, boron, aluminium and titanium contents

regulated so that the boron content fulfils
condition (1) $B \geq 1/3 \times K + 0.5$, in which K depends
on the nitrogen, aluminium and titanium contents;
(ii) 3-20% residual austenite.

The specific data in D1 (examples) make these features
improbable.

Document D1 would thus not prompt a person skilled in the
art to work within the range of claim 1.

Difference (i) creates a compromise between weldability
and annealability. This problem was not addressed by D1,
nor was this difference disclosed by documents D2 and D3.

Claim 1 thus meets the novelty requirement (PCT Article
33(2)).

Document D2 discloses hot-forged steel workpieces having a
composition similar to the composition in the application
(examples B, C, E, L and N in table 1 of D2), but with no
particular limitation of the nitrogen content. D2 does not
relate to welding or annealing.

The teaching of document D3, especially on pages 8, 10 and
11, which relates to bainitic boron steels with high
mechanical resistance for rails, does not go beyond D1.

The subject matter of claim 1 and of its dependent claims,
claims 2-5, thus appears to involve an inventive step (PCT
Article 33(3)).

The process as per claim 6 for manufacturing the workpiece
as per claim 1 also meets the novelty and inventive step
requirements. The same is true of claims 7-11, which are
dependent on claim 6.